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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,020	03/22/2006	Johannes Buettner	1281000229US1	2524

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EXAMINER

CUTLIFF, YATE KAI RENE

ART UNIT	PAPER NUMBER
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1621

MAIL DATE	DELIVERY MODE
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02/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/573,020	Applicant(s) BUETTNER, JOHANNES	
	Examiner Yate' K. Cutliff	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03/22/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's response to the Notice of Non-Compliant Amendment is acknowledged.
2. Claims 1-18 are under examination.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 recites the limitation "the alkaline wastewater" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman et al. (U.S. 4,361,712); Zhang et al (U.S. 5,948,944) and Sawicki (U.S. 6,506,948).

Rejected claim 1 covers, inter alia, a process for preparing dinitrotoluene by nitration of toluene, which comprises providing a feedstock; of nitroresol-containing extracts obtained by removing nitroresols from wastewater of mononitrotoluene preparation, adding one or more acids to the alkaline wastewater of mononitrotoluene preparation to obtain a pH of at most 3 and treating the nitroresols with an extractant.

Rejected claim 17 covers, inter alia, a process for preparing dinitrotoluene comprising: providing a feedstock of nitroresol-containing extracts obtained from a wastewater stream of a mononitrotoluene process, wherein nitrotoluene is used as an

extractant; and adding the feedstock to the dinitrotoluene process such that the amount of nitrocresols added by the addition of the extracts is between 0.01 and 1% by weight based on the amount of dinitrotoluene obtained.

The dependent claims are drawn to the work up and optimization of the final products.

Herman et al. discloses that dinitrotoluene is produced by the mixed acid nitration of toluene, the mixed acid being a mixture of concentrated sulfuric acid and nitric acid. Also, in the process mononitrotoluene is formed in a first nitration stage and then separated from aqueous phase. The crude mononitrotoluene is then dinitrated with fresh acid in a second nitration stage and the aqueous phase is recycled to the mononitration stage. Herman discloses that the end product, dinitrotoluene has impurities such as phenolic materials (nitrocresol) which are generally washed from the product with an aqueous alkaline material. (see column 1, lines, 9-25).

Herman et al. fails to explicitly disclose that acid is added to alkaline wastewater and treating the nitrocresols with an extractant; and adding the feedstock to the dinitrotoluene process.

Zhang et al. discloses that the process to produce dinitrotoluene by the nitration of toluene, whether by a mixed acid system or nitric acid by itself, typically results in the generation of undesirable by products with the typical by products include phenolic impurities, such as cresol compounds. (see column 1, lines 32-38). Zhang et al. discloses the use of a phase separation step between the mononitration step to produce the desired dinitrotoluene. The phase separation step provides an aqueous phase that

is suitably recycled to the mononitration reaction zone to the toluene reacting step. (see column 3, lines 5-12).

Zhang et al. fails to disclose a waterwash and that acid is added to alkaline wastewater.

Sawicki et al. discloses a process for recovering nitrotoluenes from the waste waters and wash waters generated from the mixed acid dinitration of toluene. Sawicki et al. discloses in the synthesis of dinitrotoluene, by the mixed acid technique, the aqueous phase separated from the organic phase of the first stage where the mononitrotoluene is formed by water wash, contains acid and organic by products. The primary organic by products include phenol, nitrophenols, dinitrophenols, cresols, dinitrocresols and trinitrocresols and traces of other organic compounds. (see column 2, lines 13-26). The process of Sawicki discloses in its step (a) contacting the "weak acid wastewater (corresponds to Applicant's wastewater) with toluene to generate an organic phase in order to extract residual levels of mononitrotoluene, dinitrotoluene and organic by products; step b) is a separation phase; step c) is basically a duplication of step a).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to prepare dinitrotoluene via nitration of toluene by using the aqueous water wash from the mononitrotoluene preparation stage of dinitrotoluene production process in use at the time of Applicant's invention, as suggested by Sawicki and produce the instant invention. One of ordinary skill in the art would have been motivated to do this because of the problem associated with wastewater and wash water treatment in the dinitrotoluene production process.

When claimed properties are expected, routine optimization permits a finding of obviousness in the absence of objective evidence of unexpected or critical properties.

Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yate' K. Cutliff whose telephone number is (571) 272-9067. The examiner can normally be reached on M-TH 8:30 a.m. - 5:00 p.m..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on (571) 272 - 0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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